

ANNEX A Bushings Subcommittee

Charlotte, North Carolina, USA
October 19th, 2022, 09:30AM Eastern

Chair (presiding officer):	Eric Weatherbee, PCORE Electric, Inc. / Hubbell Power Systems
Vice-Chair:	Scott Digby, Duke Energy
Secretary (Open):	Open Role

A.1 Opening of the Meeting

A.1.1 Call to Order / Chairman's Opening Remarks

The Chair presented and reviewed the proposed agenda that was circulated to the SC members by the Chair prior to the meeting. There were no comments concerning the proposed agenda.

The Chair requested that each person use the microphone, state their name and affiliation when addressing the subcommittee.

The Chair reminded the WG chairs and secretaries that their meeting minutes need to be submitted to the Subcommittee officers no later than 15 days after their WG or TF meetings took place.

The Chair stated that it was not certain if the replacement system to the retired AMS system would be in place prior to the next SC meeting in the Spring, so related processes will continue to be manual for now.

The Chair noted that there is mandatory WG Chair training that is required to be completed by the end of the year for current WG officers. It was noted that newly appointed WG officers would be required to complete the training within 60 days of appointment. It is estimated that the training would take 5-6 hours, at the conclusion of which there is a test.

The Bushings SC currently has a vacant Secretary position, the Chair asked that any interested individuals contact the SC Chair or Vice Chair by email or in-person after the meeting.

A.1.2 Reminders of IEEE policies

The Chair presented 2 slides which included hyperlinks which details the IEEE SA Copyright Policy. Slides advised those present that by participating in this meeting they agree to comply with the IEEE code of ethics, all applicable laws, and all IEEE policies and procedures, including the IEEE SA Copyright Policy.

A.1.3 New Members

It was reported that 8 new members have been accepted into the Subcommittee, each of whom were recognized. These new members are Mubarak Abbas, Onome Avonoma, Barry Beaster, Evgenii Ermakov, Marco Espindola, Jose Gamboa, Emilio Morales-Cruz, and Diego Robalino.

A.1.4 Attendance

Participant rosters were circulated during the meeting for recording the meeting attendance. The Chair presented a list of the 77 current voting members to perform a quorum check. Quorum was achieved. Per subsequent review of the rosters the meeting had 134 attendees, of which 54 were members and 80 guests, with 7 guests requesting membership. Refer to Appendix A for meeting participants, their affiliation, and voting member status.

Table 1 – Meeting Attendance

Total	134
Members – Quorum Achieved	54
Guests	80
Guests Requesting Membership*	7

*Review of the historical attendance records indicate that of the 7 guests requesting membership, 4 meet the eligibility requirements (Kayland Adams, Samson Debass, Jeffrey Door, and Jerzy Kazmierczak) and will be added to the membership roster effective at the next SC meeting.

A.1.5 Agenda Approval

As 54 of the 77 members were in attendance a quorum was achieved. There were no comments to the proposed agenda. A motion was made by Fabian (Durand) Stacy and seconded by Hugo Flores to approve the agenda as proposed. This motion carried by unanimous consent.

A.1.6 Previous Meeting's Minutes Approval

There were no comments to the minutes that had been posted. A motion was made by Eduardo Garcia and seconded by Hugo Flores to approve the minutes as posted. This motion carried by unanimous consent.

A.1.7 Status of Bushing Standards

The Chair presented the Standards Status Report for standards and guides under the Bushing SC, see [Appendix B](#).

A.2 Working Group and Taskforce reports

A.2.1 WG PC57.19.00-2004 – Peter Zhao, Chair; **VACANT, Vice-Chair**; Eric Weatherbee, Secretary

The WG Chair reported that the document has been going thru the balloting process. Initial ballot attained 94% approval. The CRG has been working thru the comments received during balloting.

Par expires at the end of 2022. The WG is submitting a PAR extension request but is expected to be complete with their work by the Spring SC meeting.

A.2.2 WG C57.19.01-2017 – Dr. Shibao Zhang, Chair; **VACANT, Vice-Chair**; **VACANT, Secretary**

No meeting held as the latest revision was recently published and is not due for revision again until closer to the document's 2027 expiration date. The WG Chair requested that any comments regarding the current document be forwarded to him for consideration.

A.2.3 WG PC57.19.02 Distribution Transformer Bushings – Steven Shull, Chair; Ed Smith, Vice-Chair, Rhett Chrysler, Secretary

See complete WG minutes in [Appendix C](#) of this report.

The WG Chair reported that the document has been going thru the balloting process and they are currently working thru the comments received during balloting. The group expects to be complete with their work by the Spring SC meeting.

PAR expires at the end of 2022.

A.2.4 IEC/IEEE 65700-19-03 Bushings for DC Application – Eric Weatherbee (IEEE) and Lars Jonsson (IEC), Co-Chairs; **VACANT, Vice-Chair**; J. Arturo Del Rio, Secretary

See complete WG minutes in [Appendix D](#) of this report.

A listing of the items being discussed are included in the minutes of this group's meeting from this week. It was noted that the next meeting was planned for 7:00 AM, on November 8-9 via virtual format.

A.2.5 WG C57.19.04-2018 – Scott Digby, Chair; VACANT, Vice-Chair; Rich vonGemmingen, Secretary

No meeting held as the latest revision was recently published and is not due for revision again until closer to the document's 2028 expiration date. The WG Chair requested that any comments regarding the current document be forwarded to him for consideration.

A.2.6 WG PC57.19.100-2012 – Tommy Spitzer, Chair; VACANT, Vice-Chair; VACANT, Secretary

See complete WG minutes in Appendix E of this report.

The WG Chair reported that an IEEE iMeet site has been established to assist with execution of the business of the group. The WG Chair reported that there are 33 active comments being reviewed.

PAR expires at the end of 2023.

A.3 External Liaison Reports

A.3.1 IEC Bushing Standards Activity – Bruno Mansuy, IEEE/IEC Liaison

Mr. Mansuy was not in attendance but did submit a summary report, which was reviewed. This summary report is included in Appendix F of this report. It was noted that the group discussing dimensional standards was meeting on a monthly basis.

A.3.2 WG PC57.160 Guide for PD Meas. in Bushings and Inst. Trans. – Thang Hochanh, Chair

The WG Chair was not in attendance. It was noted that this document has gone out for ballot and must be completed by the end of 2023 or will be forced to restart the project. The Guide has 350 editorial comments that need to be reviewed to complete the comment resolution spreadsheet for recirculation. Five people volunteered to assist with this task.

A.3.3 C57.12.200 Guide for the Frequency Domain Spectroscopy Measurement of Transformer Bushings – TF Entity Ballot Oversight – Poorvi Patel

It was noted that this guide has been approved, with the balloting process complete and the document in the publication stage. Mr. Locarno noted that the title had been officially changed prior to publication and has now been corrected as such.

A.3.4 Amendment to IEEE 693, Recommended Practice for the Seismic Design of Substations - Durand Stacy

Mr. Stacy reported that the document was currently in the balloting process but had not yet reached the required return rate. Mr. Stacy recommended reaching out if there was a desire to be involved. Steve Shull also noted that there seems to be some input needed regarding internal bracing and the concept of welding the transformer base to its pad.

A.4 Unfinished Business

A.4.1 Venting/PD in OIP Bushings during FAT

This topic currently resides within the TF for Continuous Revision of Low Frequency Tests. There was consensus that the study group be restarted to address the negative comment regarding this topic, with volunteers currently being solicited. The SC Chair shared survey results indicating several negative comments regarding text previously circulated on the topic. It was noted that the survey of the previously proposed text had received good approval rate but there still appeared to be work needed to address the comments received.

The TF Chair, Ajith Varghese, made a call for volunteers to participate in the study group, noting that the negative comments associated with the survey of the previous text were primarily from users concerned about bushings. [Bushings SC Vice Chair Comment: After the meeting Art Del Rio, Onome Avanoma and Egon Kirchenmayer verbally volunteered to participate in this study group. The following list of volunteers was sent to Mr. Varghese following the meeting.

Matthew Weisensee	PacifiCorp
Egon Kirchenmayer	Siemens Energy
Durand Stacy	Hitachi Energy
Shibao Zhang	PCORE Electric
Onome Avanoma	MJ Consulting
Art Del Rio	Siemens Energy

A.5 New Business**A.6 Adjournment****A.7 Next Meeting: Spring 2023, Milwaukee, Wisconsin - March 19 – 23, 2023**

First Name	Last Name	Affiliation	Role
Mubarak	Abbas	Siemens Energy	Member
Onome	Avanoma	MJ Consulting	Member
Barry	Beaster	H-J Family of Companies	Member
William	Boettger	Boettger Transformer Consulting LLC	Member
David	Calitz	Siemens Energy	Member
Juan	Castellanos	Prolec GE	Member
Juan Carlos	Cruz Valdes	Prolec GE	Member
J. Arturo	Del Rio	Siemens Energy	Member
Scott	Digby	Duke Energy	Vice-Chair
Huan	Dinh	Hitachi Energy	Member
Marco	Espindola	Hitachi Energy	Member
Eric	Euvrard	RHM International	Member
Hugo	Flores	Hitachi Energy	Member
Jose	Gamboa	H-J Family of Companies	Member
Eduardo	Garcia Wild	Siemens Energy	Member
Bill	Griesacker	W. Griesacker & Associates Inc.	Member
Ismail	Guner	Hydro-Quebec	Member
Niklas	Gustavsson	Hitachi Energy	Member
Roger	Hayes	General Electric	Member
Toby	Johnson	Hunt Electric	Member
Kurt	Kaineder	Siemens Energy	Member
Axel	Kraemer	Maschinenfabrik Reinhausen	Member
Mario	Locarno	Doble Engineering Co.	Member
Kumar	Mani	Duke Energy	Member
Robert	Middleton	RHM International	Member
Emilio	Morales-Cruz	Qualitrol Company LLC	Member
Poorvi	Patel	Electric Power Research Institute (EPRI)	Member
Sylvain	Plante	Hydro-Quebec	Member
Timothy	Raymond	Electric Power Research Institute (EPRI)	Member
Scott	Reed	MVA	Member
Pierre	Riffon	Pierre Riffon Consultant Inc.	Member
Sebastien	Riopel	Electro Composites ULC	Member
Amitabh	Sarkar	Virginia Transformer Corp.	Member
Ewald	Schweiger	Siemens Energy	Member
Cihangir	Sen	Duke Energy	Member
Devki	Sharma	Entergy	Member
Stephen	Shull	BBC Electrical Services, Inc.	Member
Sanjib	Som	Pennsylvania Transformer	Member
Thomas	Spitzer	City Transformer Service Co.	Member
Fabian	Stacy	Hitachi Energy	Member
Brad	Staley	Leeward Renewable Energy	Member
Troy	Tanaka	Burns & McDonnell	Member

Lee	Tyler	Warco, Inc.	Member
Alwyn	Van Der Walt	Electrical Consultants, Inc.	Member
Ajith	Varghese	SPX Transformer Solutions, Inc.	Member
Jason	Varnell	Doble Engineering Co.	Member
Krishnamurthy	Vijayan	PTI Transformers	Member
Dharam	Vir	Prolec GE Waukesha Inc	Member
Hugh	Waldrop	Memphis Light, Gas & Water	Member
David	Wallach	Duke Energy	Member
Eric	Weatherbee	PCORE Electric	Chair
Christopher	Whitten	Hitachi Energy	Member
Shibao	Zhang	PCORE Electric	Member
Peter	Zhao	Hydro One	Member
Kayland	Adams	SPX Transformer Solutions, Inc.	Guest
Jennie	Aldenlid	Hitachi Energy	Guest
Kush	Arora	Reinhausen	Guest
Christopher	Baumgartner	We Energies	Guest
EDWIN	BETANCOURT	SIEMENS ENERGY	Guest
Enrique	Betancourt	Prolec GE	Guest
Daniel	Blaydon	Baltimore Gas & Electric	Guest
Sanket	Bolar	Oncor Electric Delivery	Guest
Jeremiah	Bradshaw	Bureau of Reclamation	Guest
Steven	Brzoznowski	Bonneville Power Administration	Guest
Deniss	Carr	GE Grid Solutions	Guest
Juan Alfredo	Carrizales	Prolec GE	Guest
Larry	Christodoulou	Electric Power Systems	Guest
EGE	DAVASLI	SIEMENS ENERGY	Guest
Samson (Sami)	Debass	EPRI	Guest
Nikolaus	Dillon	Dominion Energy	Guest
Paul	Doloff	East Kentucky Power	Guest
Jeffrey	Door	H-J Family of Companies	Guest
Don	Dorris	Nashville Electric Service	Guest
Alexander	Doutrelepont	Siemens Energy	Guest
Jesse	Duffy	Nashville Electric Service	Guest
Howard	Fennell	Nashville Electric Service	Guest
Marcos	Ferreira	Beale AFB	Guest
Sanford	Fong	Georgia Power	Guest
Raymond	Frazier	Ameren	Guest
Shawn	Gossett	Ameren	Guest
Jeffrey	Gragert	Xcel Energy	Guest
Scott	Gray	Siemens Energy Inc.	Guest
Ronald	Hernandez	Doble Engineering Co.	Guest
Jean	Hernandez-Mejia	Georgia Tech NEETRAC	Guest
Saramma	Hoffman	PPL Electric Utilities	Guest

ANIRUDHDHSINH	JHALA	TRANSFORMERS & RECTIFIERS INDIA LIMITED	Guest
Christopher	Johnson	Oncor	Guest
Stephen	Jordan	Tennessee Valley Authority	Guest
Akash	Joshi	Black & Veatch	Guest
Jerzy	Kazmierczak	Hitachi Energy	Guest
Joerg	Kirchhoff	HSP	Guest
Peter	Kleine	US Army Corps of Engineers	Guest
Nathan	Lange	Siemens Energy, Inc.	Guest
Alberto	Martinez Mares	WEG Transformers USA	Guest
Mama	Mbouombouo	Hitachi Energy	Guest
James	McBride	JMX Services, Inc.	Guest
Michael	Miller	Siemens Energy	Guest
Philip	Miller	Memphis Light, Gas & Water	Guest
Francis	Mills	POWER Engineers Inc.	Guest
Gianetta	Morrow	Crane Aerospace	Guest
HUGO	MURILLO	The H-J Family of Companies	Guest
David	Murray	Tennessee Valley Authority	Guest
Ryan	Musgrove	Oklahoma Gas & Electric	Guest
Paul	Mushill	Ameren	Guest
Yaw	Nyanteh	Hyosung HICO	Guest
Tomas	Olsson	Hitachi Energy	Guest
Anastasia	O'Malley	Consolidated Edison Co. of NY	Guest
Herman	Parrales	Prolec GE Wauskesha	Guest
Rakesh	Patel	Hitachi Energy	Guest
Oscar	Pinon	OTC Services	Guest
Dominic	Pollaro	NASS	Guest
Daniel	Posadas	Prolec St de CV	Guest
Leslie	Recksiedler	Manitoba Hydro International	Guest
Clemens	Reiss IV	Custom Materials, Inc.	Guest
Zoltan	Roman	GE Grid Solutions	Guest
Dinesh	Sankarakurup	Duke Energy	Guest
Eric	Schleismann	Southern Company Services	Guest
H. Jin	Sim	Jin Sim & Associates, PC	Guest
Jonathan	Sinclair	PPL Electric Utilities	Guest
Christopher	Slattery	FirstEnergy Corp.	Guest
Jason	Snyder	FirstEnergy	Guest
Hampton	Steele	Tennessee Valley Authority	Guest
Katrina	Swanson	Southern Company Services	Guest
Matthew	Sze	OMICRON electronics Canada Corp.	Guest
Craig	Tennant	H-J	Guest
Kiran	Vedante	Ritz Instrument Transformer Inc	Guest
Rogelio	Verdolin	Verdolin Solutions Inc.	Guest

Herman	Vogel	TJH2b	Guest
Richard	vonGemmingen	Dominion Energy	Guest
Matthew	Weisensee	PacifiCorp	Guest
Barrett	Wimberly	GE Grid Solutions	Guest
Kwasi	Yeboah	GE Energy Management	Guest
FANG	ZHU	R.E. UPTEGRAFF MFG. CO	Guest
Waldemar	Ziomek	PTI Transformers	Guest

F22 Unofficial Standards Status Report

Standard Project	Title	WG Chair	Pub Year Rev. Due Date	PAR Issue Par Expiration	Comments
PC57.19.00	IEEE Standard General Requirements and Test Procedure for Power Apparatus Bushings	P. Zhao	2004 12/2020	2018 12/2022	Comment Resolution Process, 1st Ballot had 94% approval with 110 comments, seeking extension
C57.19.01	IEEE Standard Performance Characteristics and Dimensions for Outdoor Apparatus Bushings	S. Zhang	2017 12/2027		
PC57.19.02	Standard for the Design and Performance Requirements of Bushings Applied to Liquid Immersed Distribution Transformers	S. Shull	New	2016 12/2022	Comment Resolution Process, 1st Recirculation 88% approval, 378 comments down to 77, seeking extension
P65700-19-03	IEC/IEEE International Standard -- Bushings for DC application	Interim Eric Weatherbee	2014 12/2024	2021 12/2025	WG Draft Development - Next teleconference 11/8 - 11/9/22
C57.19.04	Standard Performance Characteristics and Dimensions for High Current Power Transformer Bushings with Rated Continuous Current in Excess of 5000 A in Bus Enclosures	S. Digby	2018 12/2028		
PC57.19.100	IEEE Guide for Application of Power Apparatus Bushings	T. Spitzer	2012 12/2022	2019 12/2023	WG Draft Development

Distribution Transformer Subcommittee Task force / Working Group Report

Document #: PC57.19.02

Document Title: Standard for Design and Performance Requirements for Bushings
Applied to Liquid Immersed Distribution Transformers

Chair: Steve Shull Vice-Chair: Ed Smith
Secretary: Rhett Chrysler Percent Complete: 80

Current Draft Being Worked On: D2.2 Dated: Sept 2022

Meeting Date: October 18, 2022 Time: 11:00 am – 12:15 pm

Attendance:

NAME	Affiliation	M or G	Name	Affiliation	M or G	Name	Affiliation	M or G
Alan Traut	Howard Industries	M	Fabian Stacy	Hitachi Energy	M	Kyle Heiden	EATON Corporation	M
Alan Wilks	Consultant	M	Fernando Salinas	Power Partners	G	Lee Matthews	Howard Industries	G
Albert Sanchez	Knoxville Utilities Board	G	Florian Costa	Corimpex USA, Inc.	G	Lee Tyler	Warco, Inc.	M
Ali Ghafoorian	H-J Enterprises, Inc.	M	Frye Rich	Eaton	G	Mason Rush	Central Moloney, Inc.	G
Barry Beaster	H-J Family of Companies	M	Gary King	Howard Industries	G	Matthew Sze	Omicron Electronics	G
Brad Staley	Salt River Project	G	Huan Dinh	Hitachi Energy	M	Michael Dahlke	Central Moloney, Inc.	M
Bruce Webb	Knoxville Utilities Board	G	Hugo Flores	Hitachi Energy	M	Michael Hardin	H-J Enterprises, Inc.	M
Carlos Gaytan	Prolec GE	M	Hugo Murllo	H-J Family of Companies	G	Michael Morgan	Duke Energy	M
Christopher Whitten	Hitachi Energy	G	Jarrod Prince	ERMCO	M	Orlando Giraldo	H-J Family of Companies	G
Clemens Reiss IV	Custom Materials, Inc.	M	Javier Arteaga	Hitachi Energy	M	Pragnesh Vyas	Sunbelt-Solomon Solutions	M
Craig DeRouen	ERMCO	M	Jean Carlos Hernandez	GT NEETRAC	G	Ramadan Issack	American Electric Power	M
Daniel Posados	Prolec Celco	G	Jeffrey Door	H-J Family of Companies	G	Reinaldo Valentin	Duke Energy	M
Darren Brown	Howard Industries	M	Jerry Murphy	Reedy Creek Energy Services	M	Robert Reepe	Georgia Power Co.	M
Dominic Pollaro	NASS	G	Jon Radu	Hitachi Energy	G	Stephen Shull	BBC Electrical Services, Inc.	M
Dwight Parkinson	EATON Corporation	G	Jose Gamboa	H-J Family of Companies	M	Steven Brzozowski	Bonneville Power Administration	G
Edward Smith	H-J Family of Companies	M	Joshua Verdeli	ERMCO	M	Tim Morris	Walton EMC	G
Edwin Belancourt	Columbia	G	Kendrick Hamilton	Power Partners, Inc.	M	Timothy Tillery	Howard Industries	M
Eric Weatherbee	PCORE Electric	M	Kent Miller	T&R Electric Supply Co.	G	Weijun Li	Braintree Electric Light Dept.	M

Meeting Minutes:

The chair called the meeting to order at 11:00 am.

Attendance is included in table above

- 54 total
- 31 members
- 23 guests

Distribution Transformer Subcommittee Working Group Report

Quorum was established with 31/59 (53%) members present.

The chair presented the agenda. Jerry Murphy moved to approve the agenda and Hugo Flores seconded the motion. Motion was approved unanimously.

The chair presented the minutes from the Fall 2021 and Spring 2022 meetings. The chair opened the floor for corrections with none brought forward. Both meeting minutes were approved unanimously.

The chair presented the IEEE SA slides for Essential Patent Claims.

The chair provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard. None were identified.

The chair presented the IEEE SA Copyright Policy.

Old Business:

Review status of the Ballot

- The CRG group resolved all of the comments from the initial ballot. Then at the direction of the CRG, the chair recirculated the ballot between the Spring 2022 and Fall 2022 meeting.
- The chair presented the first recirculation ballot results which are summarized as follows:
 - 105 ballot members
 - 93 return (88%)
 - 4 abstentions (4%)
 - 93% approval rate (89 votes)
 - 77 comments

The chair reported that the majority of these were editorial. The chair stated that the CRG will address these in the next few weeks. Once completed, the chair will initiate a second recirculation.

New Business:

No new business was brought forward.

Meeting was adjourned at 11:30 am.

Next meeting is scheduled for the Spring 2023 Transformer Committee meeting in Milwaukee, WI.

Submitted by: Rhett Chrysler

Date: 10/18/2022

IEC/IEEE 65700_19_03 DC Bushings WG

Minutes of 2022 Fall Meeting

Tuesday, October 18th, 2022- 9:30 – 10:45 AM

Sheraton/ Le Meridien – Charlotte, NC – Symphony 2,3 (1)

Eric Weatherbee - Chair

Vacant – Vice Chair

J. Arturo Del Rio – Secretary

The WG met on Tuesday, October 18th, 2022 at 9:30 am

1. Welcoming and Call for Patents, Copyrights

- The meeting was called to order at 9:30 AM by the Chair.
- The call for potentially essential patents and copyrights issues was made. None were reported.

2. Quorum

- Total of 30 participants: 7 members and 24 guests.
- 7 Members of the 11 WG Members were present therefore quorum was met. Agenda and previous meeting minutes were approved.

3. Liaison Update on Join Team activity (PowerPoint slides)

Full JMT meeting minutes to be posted in the Transformer Committee website.

- 2nd Meeting: June 1st and 2nd 2022
 - Decisions:
 - The proposal from TF1 was discussed and agreed to be included in the draft CD, and finally reviewed in the next meeting. Responsible; Ulf Radbrandt.
 - It was agreed to fully align the altitude correction with IEC 60137 ed. 7 and include in the draft CD; Responsible Lars Jonsson.
 - It was agreed that TF2 should develop an example along with the proposed revision of section 4.5 re. how pollution parameters and formulas are handled. To be reviewed in the next meeting. Responsible; Giovanni Testin.
 - The proposal from TF3 re. the special test section was discussed and agreed. It was also agreed that TF3 will review and possible include additional reference documents. Responsible; Roger Hedlund
 - The proposed update to section 6 was agreed and will be included in the draft CD. Responsible; Lars Jonsson
 - Miscellaneous: It was noted that relevant data for gas filled, gas insulated, and gas impregnated bushings should be reviewed in the next revision of IS 60137, in particular if minimum operating pressure and rated filling pressure should be added.

- It was agreed that Tobias Haumann, Roger Hedlund and Giovanni Testin, will review and propose whether Max DC voltage, Rated AC Current and Rated DC current should be included on the rating plate. Responsible: Roger Hedlund.
- 3rd Meeting: September 6th and 8th 2022
 - Decisions:
 - Update figure C4, C5 and C6. Responsible; Ulf Radbrandt.
 - Write a note explaining why no altitude correction is proposed for AC and DC voltage in section 5.3. Responsible; Laura De Fina.
 - TF2 is encouraged to complete the work related to pollution parameters and present a recommendation in the next meeting. Responsible; Giovanni Testin.
 - Modify section 10 following the removal of 10.3. Include IEC 60071-5 (2014) as a reference in Annex D. Responsible; Roger Hedlund.
 - Review and propose whether Max DC voltage, Rated AC Current and Rated DC current should be included on the rating plate. Tobias Haumann, Roger Hedlund and Giovanni Testin and Roger Hedlund.
 - Propose a revised section 8.4; Responsible; Tobias Haumann.
 - Include a writing in section 9.5 re. extended polarity reversal test with reference to IEC 60076-57-129. Tobias Haumann, Jean-Christophe Riboud, Roger Hedlund and Lars Jonsson.
 - Remove Table 4 and 5 and refer to the respective IEC and IEEE AC bushing standards and comment the test voltage. Jean-Christophe Riboud and Lars Jonsson.
 - Abbreviations: (BIL) to be replaced by (LI or BIL), and (SIL) to be replaced by (SI) throughout the document. Responsible; Lars Jonsson
 - A proposal for thermal stability test was rejected. Such will only test the exact test set-up and not have a general value.
 - A few comments to the first draft CD from the group were discussed and agreed. Will be highlighted in the next draft. Responsible; Lars Jonsson.

4. New business:

4.1 No new business or comments

Meeting was adjourned at 9:50am

Next JMT JOINT Meeting

4th Meeting: November 8th and 9th, 2022, to be held by Zoom teleconference service on two consecutive days @ 1 pm Stockholm time

Agenda:

-Review of the previous Minutes of Meeting

- Update of work in progress by each responsible
- TF2: Review altitude and pollution correction
- Review the status of draft CD: Lars Jonsson

Next IEEE WG Meeting

Spring 2023 – Milwaukee (Hyatt Regency), Wisconsin USA, March 19 – 23, 2023

Respectfully submitted,

Chair: Eric Weatherbee (eweatherbee@ieee.org)

Secretary: Art Del Rio (a.delrio@ieee.org)

Attendance and status:

Status	First Name	Last Name	Affiliation
Guest	Mubarak	Abbas	Siemens Energy
Guest	Jennie	Aldenlid	Hitachi Energy
Guest	Kush	Arora	Reinhausen
Guest	Florian	Costa	Corimpex USA, Inc.
Member	Juan Carlos	Cruz Valdes	Prolec GE
Guest	Ege	Davasli	Siemens Energy
Guest	Stankes	Dave	3M
Secretary	J. Arturo	Del Rio	Siemens Energy
Guest	Alex	Doutrelepont	Siemens Energy
Guest	Eric	Euvrard	RHM International
Member	Kurt	Kaineder	Siemens Energy
Guest	Joerg	Kirchoff	Siemens Energy
Guest	Dmitriy	Klempner	Southern California Edison
Guest	Nathan	Lange	Siemens Energy
Guest	Gustavo	Leal	Dominion Energy
Guest	Kent	Miller	T&R Electric
Guest	Justin	Minikel	EATON Corporation
Guest	Solomon	Phiay	TGC
Guest	Daniel	Posadas	Prolec Celeco
Member	Ulf	Radbrandt	Hitachi Energy
Member	Leslie	Recksiedler	Manitoba Hydro
Guest	Sebastien	Riopel	Electro Composites
Guest	Tommy	Spitzer	City Transformer
Member	Fabian	Stacy	Hitachi Energy
Guest	Katrina	Swanson	Southern Company Services
Guest	Lee	Taylor	WARCO
Guest	Craig	Tonnent	H-J
Chair	Eric	Weatherbee	PCORE Electric

Guest	Christopher	Whitten	Hitachi Energy
Guest	Fang	Zhu	R.E, Uptegraff

PC57.19.100 Bushing Application Guide Meeting Minutes
10/17/2022 Fall Meeting
Tommy Spitzer Chair Fabian Stacy Secretary

The meeting was called to order at 3:15 EST with 50 people present, 16 members 34 guests with 0 requests for membership. Quorum was achieved.

After introductions, a request for patent disclosures was made and none were presented.

Motion to approve the Agenda by Eric Weatherbee, 2nd by Scott Digby

Minutes from the Fall 2021 meeting minutes were approved by Eric Weatherbee, 2nd by Scott Digby

Minutes from the Spring 2022 meeting minutes were approved by Eric Weatherbee, 2nd by Scott Digby

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File of open comments were presented by Tom Spitzer "C57.19.100 Comments and Proposal – Oct 22.xls"

During the review of this File, it was noted that it did not contain all the comments that were made it was determined that the file that was presented might be an older version due to an issue with Mr. Spitzers computer having crashed. Eric Weatherbee PCORE Electric agreed to resend his comments so that they could be included in that file.

Review of the changes to the guide were posted by the chair. The Chair would like to get the changes reviewed so it can go to ballot by the next meeting.

Motion to adjourn by Fabian Durand Stacy, 2nd by Eric Weatherbee
The meeting was adjourned at 3:35 PM CST

PC57.19.100 WG Meeting Participants 10/17/22			
Last name	First Name	Affiliation	Role
Abbas	Mubarak	Siemens	Guest
Armstrong	James K	Trench	Guest
Blackman	Bo	GPC	Guest
Bhatt	Vivek	Prolec GE	Guest
Corsi	Dom	Doble	Guest
Costa	Florian	Corimpex USA Inc.	Member
Cruz Valdes	Juan Carlos	Prolec GE	Guest
Davasli	Ege	Siemens	Guest
Del Rio	Art	Siemens	Member
Digby	Scott	Duke Energy	Member
Dinh	Huan	Hitachi	Guest
Dolloff	Paul	East Kentucky Power	Guest
Door	Jeffery	H-J Family of Companies	Guest
Duffy	Jesse	Nashville Electric	Guest
Euvard	Eric	RHM International	Member
Hampton	Kevin	Siemens	Guest
Hernandez-Mejra	Juan Carlos	Georgia Tech - NEETRAC	Guest
Hrewle	Edmond	Bonneville Power	Guest
Kainder	Kurt	Siemens	Guest
Kerschenbauer	Chrisloph	Siemens	Guest
Kirchenmayer	Egon	Siemens	Member
Lange	Nathan	Siemens	Guest
Locarno	Mario	Doble	Member
Middleton	Robert	RHM International	Member
Mikulecky	Filip	Siemens	Guest
Neihlein	Klaus	Siemens	Guest
Pollaro	Dominic	NASS	Guest
Posadas	Daniel	Porlec	Guest
Pelton	Verena	Florida Power and Light	Guest
Rothi	Rakesh	Virginia Transformer	Guest
Raymond	Tim	Epri	Guest
Recksiedler	Leslie	Manitoba Hydro	Guest
Riopel	Sebastien	Hubble	Member
Sanchez	Oliverio	Pacific Gas & Electric	Guest
Schleismann	Eric	Southern Company Services	Guest
Schranne	Alfons	Siemens	Guest
Sharma	Devki	Entergy	Member
Spitzer	Tommy	City Transformer Service Co.	Chair
Stacy	Durrand	Hitachi	Secretary

<i>PC57.19.100 WG Meeting Participants 10/17/22</i>			
Staley	<i>Brad</i>	<i>Leeward</i>	<i>Member</i>
Takan	<i>Cax</i>	<i>MGC</i>	<i>Guest</i>
Tanaka	<i>Troy</i>	<i>Burns & McDonald</i>	<i>Guest</i>
Tyler	<i>Lee</i>	<i>Warco</i>	<i>Member</i>
Van Dreel	<i>Cove</i>	<i>American Transmission Co.</i>	<i>Guest</i>
Weatherbee`	<i>Eric</i>	<i>Pcore</i>	<i>Member</i>
Weisensee	<i>Matthew</i>	<i>PacifiCorp</i>	<i>Guest</i>
Whitten	<i>Christopher</i>	<i>Hitachi Energy</i>	<i>Guest</i>
Zhang	<i>Shibao</i>	<i>PCore</i>	<i>Member</i>
Zhou	<i>Peter</i>	<i>Hydro One</i>	<i>Member</i>
Zhu	<i>Fang</i>	<i>R. E. Uptegraff</i>	<i>Guest</i>

FALL 2022 MEETING OF IEEE TRANSFORMER BUSHINGS

Location: CHARLOTTE

Date: OCTOBER 16 – 20, 2022

BUSHINGS SUBCOMMITTEE WORKING GROUP AND TASK FORCE MEETINGS

Liaison Reports - IEC Bushing Standardization Activities

INTERNATIONAL ELECTROTECHNICAL COMMISSION TECHNICAL COMMITTEE No.36A: Insulated Bushing

SC 36A Bushing dimensional standardization	A working group is discussing on a monthly basis the possibilities to standardize dimensions. Plan is to prepare a draft technical report in November, so that it can be discussed during the JWG 7 meeting scheduled in Milano on December 5 and 6, 2022.
Guide of application for power apparatus bushings	The Joint Ad Hoc Group 8 presented the draft bushing application guide on June 28 th 2022, to TC 14 (Power transformers) and feedbacks are expected to keep on working.
Revision of IEC 65700 Bushings for DC application	<p>The group is divided in three Task Forces and one Team for editorial topics.</p> <p>TF1: review the draft CD re. Voltage Source Converter (VSC).</p> <p>TF2: review updates incl. examples re. altitude corrections and pollution parameters.</p> <p>TF3: review the draft CD re. the special tests section (even and uneven wetting) incl. reference documents.</p> <p>Editorial; Review the status of draft CD including:</p> <ul style="list-style-type: none"> - Updated section 5 and 6 - Data on rating plate
Maintenance Team for revision of IEC 60137 Bushings above 1kV.	<p>Revision of the standard IEC 60137 with review of the contents and extension of tables to cover the new UHV voltage classes according to IEC60071-1</p> <p>Workplan to be defined</p>